

### **REMARKS/ARGUMENTS**

Claims 1-65, 78, 80, 82, 84, 86, 88, 90 and 92-96 are pending in this application. Of these, nos. 1-4, 6-9, 13-22, 24-26, 29-31, 35-46 and 90 are under examination and have been rejected. The remaining claims, nos. 5, 10-12, 23, 27, 28, 32-34, 47-65, 80, 82, 84, 86, 88, 90 and 92-96, are withdrawn by the Examiner from consideration.

In this response, claim 1 is amended such that it now recites that the bonding agent is limited to a plasma layer with charged chemically reactive groups. In light of the amendment to claim 1, moreover, claims 8-10 have been cancelled without prejudice or disclaimer. Claim 8 recited that the bonding agent is a polymer with charged or uncharged chemically reactive groups and claim 9 further defined the polymer as a hydrogel. Since claim 1 no longer recites that the bonding agent may constitute a polymeric layer, these claims have been canceled as noted above. Furthermore, claim 10 is also canceled without prejudice or disclaimer due to the above-described amendment to claim 1 since the subject claim as written recited that the bonding agent is a plasma layer with charged or uncharged chemically reactive groups and is, thus, redundant to amended claim 1.

Finally, in reviewing the claims of this application, it was noted that claim 90 was multiply dependent upon claims 1 and 47. However, claim 47 has been withdrawn from consideration by the Examiner and, thus, claim 90 has been amended herein to delete therefrom the reference to the withdrawn claim. None of the above-described amendments add any new matter to the application and their entry is respectfully requested.

Upon entry of this Amendment, claims 1-7, 11-65, 78, 80, 82, 84, 86, 88, 90 and 92-96, as amended, will remain pending in this application.

Applicants wish to express their appreciation for the courtesy extended by the Examiner to their representative, Mark A. Farley, Esq. during a brief telephone discussion regarding this application held on April 29, 2008. Applicants' representative telephoned the Examiner to discuss a possible amendment to the claims wherein claim 1, would recite a bonding agent constituted of a plasma layer having charged chemically reactive groups. It was pointed out to the Examiner, however, that in the Response dated March 21, 2007 to the Restriction Requirement and Species Election Requirement, applicants had elected as the species of bonding agent a polymer with charged/uncharged reactive groups. Upon considering this matter, the Examiner agreed to consider applicants' proposal for amending claim 1, in view of the original

language of the subject claim. The Examiner is thus thanked for agreeing to consider the indicated amendment.

### **Claim Rejections Under 35 U.S.C. §112**

Claims 8-9 are rejected under 35 USC 112 for the reasons given on p. 2 of the Office Action. Cancellation of the subject claims, however, without prejudice or disclaimer, renders the rejection moot. The Examiner is, thus, respectfully requested to reconsider and withdraw the §112 rejection.

### **Claim Rejections Under 35 U.S.C. §103**

On p. 7 of the Office Action, the Examiner states that a new ground of rejection has been raised in view of applicants' amendment (in their previous response filed in this application) requiring a bonding agent that is a charged polymer or a plasma layer with charged chemically reactive groups. Therefore, as discussed at pps. 3-6 of the Office Action, claims 1-4, 6, 7, 13-17, 19-22, 24-26, 29-31, 35-46 and 90 are rejected on p. 3 of the Office Action as allegedly 'obvious' under 35 USC 103 over Mirkin et al. (US 2002/0127574) in view of Kotov (USP 7,045,087). This ground of rejection is respectfully traversed.

Pursuant to the above-described §103 rejection, applicants have amended independent claim 1, i.e., which is the only independent claim presently under examination, such that the claim now recites that the at least one layer of bonding agent is a plasma layer with charged chemically reactive groups. As amended, the claim is believed (for the reasons provided below) to distinguish applicants' element over the combination of Mirkin et al. and Kotov cited by the Examiner in support of her rejection of the claims.

As to the Mirkin et al. published patent application No. US 2002/0127574 ("Mirkin I"), applicants note the statement on p. 3 of the Office Action that the subject reference, "fail[s] to teach the bonding agent being a plasma layer with charged chemically reactive groups." This reference, then, neither teaches nor even suggests applicants' functional element as presently claimed.

In view of the fact that, as noted above, Mirkin et al. fails to teach a plasma layer with charged chemically reactive groups as a bonding agent, the Examiner has combined the Mirkin et al. reference with the reference to Kotov which allegedly discloses the element that is missing from Mirkin et al. The Examiner's argument concerning this element is set forth in the paragraph

bridging pp. 3-4 of the Office Action. Applicants respectfully submit, however, that it appears to them the Examiner has, in fact, misinterpreted the teachings of the reference insofar as whether the subject patent discloses such a bonding agent that is a plasma layer with charged chemically reactive groups. That is, in applicants' view the reference neither refers to or otherwise discloses a bonding agent which is a plasma layer or a plasma layer with charged chemically reactive groups. What applicants believe has occurred is that the Examiner has misinterpreted a description in the subject Kotov reference of a polymeric bonding agent as being directed to a plasma, i.e., she has referred to the disclosure at col. 5, lines 32-41 of a positively charged polyelectrolyte layer as constituting a "plasma" when, in fact, this layer is not believed to constitute a plasma at all. Rather, the teaching found therein is believed to be directed to a polymeric layer.

There are a number of fundamental differences between polymer layers, i.e., of the 'type' disclosed in Kotov and plasma layers as recited for example in claim 1. Plasma layers exhibit mainly cross-linked molecular structures while polymer layers exhibit linear molecules. Plasma layers are highly irregular and have an amorphous structure while polymers, due to the linear nature of the polymer chains, have some regularity and exhibit a crystalline structure. Furthermore, in plasma layers, due to strong cross-linking the monomers are completely subsumed in the molecular structure. Contrastingly, in polymers the monomer structures are still present in that they form part of the polymer chain. Plasma layers contain many radical functions; the radicals are present throughout the plasma layer and they are durable. In contrast, polymer layers have only a few radicals their surface and these radicals are very short-lived.

Taking into account the differences described above between plasma layers and polymeric layers, applicants respectfully submit that Kotov, which discloses a polymeric layer and not a plasma layer, would neither teach nor suggest the use to one having ordinary skill in this art of a plasma layer such as is presently recited in claim 1.

For the reasons given, therefore, claim 1 is believed to distinguish the claimed element over the combination of Mirkin and Kotov and the Examiner, therefore, is respectfully requested to reconsider and withdraw the rejection of the subject claim (no. 1) under 35 USC 103. Additionally, since all of the remaining rejected claims depend directly or indirectly from claim 1 and thus include all of the features recited in that claim, the dependent claims are also believed to distinguish the claimed element for the same reason(s) as claim 1.

Further to the above, claims 8 and 9 are rejected under §103 at p. 6 of the Office Action over Mirkin in view of Kotov and further in view of Montgomery et al. (USP 6,093,302). In response, applicants submit that the cancellation of the subject claims, without prejudice or disclaimer, is believed to render the rejection moot. The Examiner is, thus, respectfully requested to reconsider and withdraw this ground of rejection.

Still further, on p. 7 claim 18 is rejected under 35 U.S.C. §103 over Mirkin in view of Kotov and further in view of Mirkin et al. US 2002/0132371, hereinafter "Mirkin II". This rejection is also respectfully traversed.

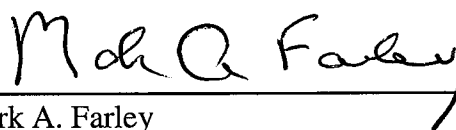
The Mirkin II reference is cited, according to the Office Action (p. 7) due to its teaching that nucleic acids, antibodies and other specific protein binding proteins may be used in a device similar to that disclosed in Mirkin I (US 2002/0127574) to provide for detection of protein analytes. Mirkin II, however, suffers from the same deficiency as Mirkin I in that it fails to teach or suggest a bonding agent which is a plasma layer having charged chemically reactive groups. Thus, the addition of Mirkin II to the combination of Mirkin I and Kotov still would fail to suggest applicants' claimed element to one having an ordinary level of skill in this art and the Examiner is, therefore, respectfully requested to reconsider and withdraw the rejection of claim 18 under 35 USC 103.

### Summary

The Examiner, therefore, is requested to withdraw all of the pending rejections to the remaining claims and to pass this application through to allowance.

THIS CORRESPONDENCE IS BEING  
SUBMITTED ELECTRONICALLY  
THROUGH THE PATENT AND  
TRADEMARK OFFICE EFS FILING SYSTEM  
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Respectfully submitted,



Mark A. Farley  
Registration No.: 33,170  
OSTROLENK, FABER, GERB & SOFFEN, LLP  
1180 Avenue of the Americas  
New York, New York 10036-8403  
Telephone: (212) 382-0700

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